

ABSTRACT

Two piezoelectric vibrators (Sa and Sb) that receive stresses generated by a mechanical quantity, such as acceleration, in opposite directions are provided. A current-to-voltage converter/signal adder circuit (11) converts the electric current signals flowing through the two piezoelectric vibrators (Sa and Sb) into voltage signals. A voltage amplifier/amplitude limiter circuit (12) amplifies an added signal obtained from the two voltage signals and limits its amplitude. A phase-difference-to-voltage converter circuit (15) detects a difference in the phases of the added signal and a feedback voltage signal (V_{osc}) applied to the acceleration detection element (10). A phase shifter circuit (16) controls the phase of the feedback voltage signal so that the phase is set to a predetermined phase. A filter circuit 17 suppresses frequency components higher than an oscillation frequency in an unwanted frequency band.

By increasing the resistance of resistors (RLa and RLb) so as to increase the damping ratio, temperature stability is increased. Accordingly, abnormal oscillation is prevented by the filter circuit (17), and fluctuation in the characteristics is suppressed by the phase control circuit (20).